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## Classifying Science:

### A Government Proposal . . .

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... There is an overlap between technical information and national security, which inevitably produces tension. This tension results from the scientist's desire for unconstrained research and publication, on the one hand, and the federal government's need to protect certain information from potential foreign adversaries who might use that information against this nation. Both are powerful forces, thus it should not be a surprise that finding a workable and just balance between them is quite difficult. But finding this balance is essential, for we must simultaneously protect the nation and protect the individual rights of scientists—both as academicians and citizens.

This tension is accentuated when scientists are employed by the federal government directly, or work for the government indirectly in their own offices with federal research funds. Some of this work is done on subjects that directly affect the nation's security—e.g., its defense, diplomacy and intelligence efforts.

There are cases where interplay has occurred between science and the national security interests. One of the most obvious, of course, is the Manhattan Project of World War 2 in which the first nuclear weapons were created and tested. Another is the development of "national technical means" to monitor foreign compliance with international arms control accords.

Science and national security have a symbiotic relationship—each benefitting from the interests, concerns and contributions of the other. In light of the long history of that relationship, the suggestion is hollow that science might (or should somehow) be kept apart from national security concerns, or that national security concerns should not have an impact on "scientific freedom."

The need in today's world for protection of some information, for secrecy is clear—I believe—to any fair observer. Protection of the information necessary to safeguard our society, and to conduct our international affairs, must occur. Within the federal government, there is a system established by Executive Order to assess the expected damage, should certain information come into the hands of foreign enemies, and—based on that assessment—to control access to that information so as to prevent any such exposure. This exposure potentially could occur through public release of the data, or from the successful clandestine activities of the agents of foreign intelligence services.

And we should make no mistake, foreign intelligence services—among other entities of foreign governments—are collecting all types of information in the U. S. Specific data on technical subjects are high on the wanted list of every major foreign intelligence service and for good reason.

The U. S. is a leader in many—if not most—technical areas, and technical data can enhance a nation's international strength. In terms of harm to the national interest, it makes little difference whether the data are copied from technical journals in a library or given away by a member of our society to an agent of a foreign power.

A different source completely separates research in areas obvious and preeminent example is the domain of nuclear ones. Another example is in the areas of mathematics, there is no overlap with weapons. Such a mathematical concept as business communication

Research into cryptography is an area of special, long-standing concern to me. When I was director of the National Security Agency, I started a dialogue to find a common ground regarding cryptography between scientific freedom and national security. Considerable effort has gone into that dialogue, by both scientists and public servants, and I think the results so far have been reasonable and fair. Cryptologic research in the business and academic arenas, no matter how useful, remains redundant to the necessary efforts of the federal government to protect its own communications. I still am concerned that indiscriminate publication of the results of that research will come to the attention of foreign governments and entities and, thereby, could cause irreversible and unnecessary harm to U. S. national security interests.

There are, in addition, other fields where publication of certain technical information could affect the national security in a harmful way. Examples include computer hardware and software, other electronic gear and techniques, lasers, crop projections and manufacturing procedures.

I think it should also be pointed out that scientists' blanket claims of scientific freedom are somewhat disingenuous in light of the arrangements that academicians routinely make with private, corporate sources of funding. For example, academicians do not seem to have any serious difficulty with restrictions on publications that arise from a corporate concern for trade secret protection. The strong, negative reaction from some scientists, over the issue of protecting certain technical information for national security reasons, seems to be based largely on the fact that the federal government, rather than a corporation, is the source of the restriction. Yet this would presume that the corporate, commercial interests somehow rise to a higher level than do national security concerns. I could not disagree more strongly.

Scientists and engineers have served our society spectacularly in peace and war. Key features of science—unfettered research, and the publication of the results for validation by others and for use by all mankind—are essential to the growth and development of science. Both our national security and our economic development rely heavily on these features. Restrictions on science and technology should only be considered for the most serious of reasons.

But nowhere in the scientific ethos is there any requirement that restrictions cannot or should not, when necessary, be placed on science. Scientists do not immunize themselves from social responsibility simply because they are engaged in a scientific pursuit. Society has recognized over time that certain kinds of scientific inquiry can endanger society as a whole and has applied either directly, or through scientific/ethical constraints, restrictions on the kind and amount of research that can be done in those areas.

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